

# Wide Temperature Cycling Tolerant Electronic Packaging Substrates, Phase I

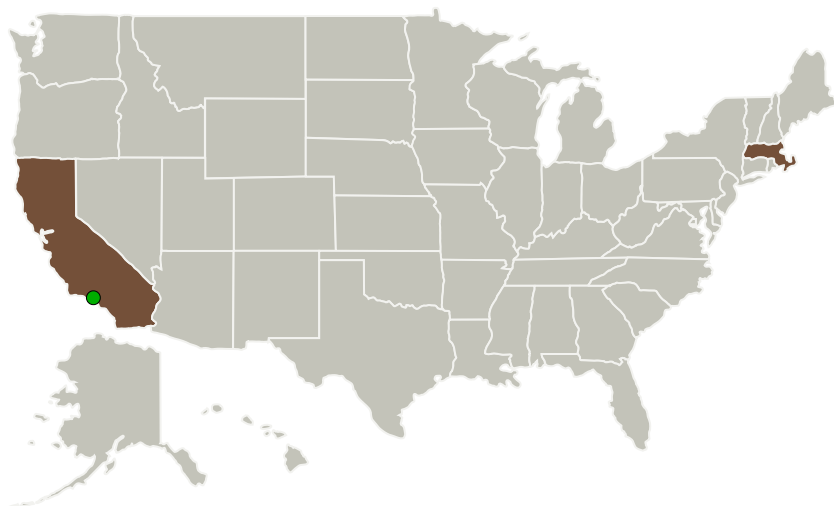
Completed Technology Project (2011 - 2011)




## Project Introduction

Planetary exploration missions require electronics packaging that can withstand extreme temperatures and numerous temperature cycles (-230C to +350C). The present project proposes a novel metallized ceramic substrates that could potentially withstand these temperature extremes and serve as reliable packaging platforms. Phase I research will be aimed at confirming this - new metallized ceramic substrates will be subjected to severe thermal cycling tests and any change in metallization adhesion to ceramic or change in electrical properties will be quantified. If Phase I is successful, we will proceed to addressing the other important issues, like etching, plating, wire bonding and die bonding to new substrates to result in a demonstrator package capable of withstanding the extreme thermal cycling.

## Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
ReMetAI LLC	Lead Organization	Industry	Belmont, Massachusetts
 Jet Propulsion Laboratory(JPL)	Supporting Organization	NASA Center	Pasadena, California



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## Primary U.S. Work Locations

California

Massachusetts

## Project Transitions



**February 2011:** Project Start



**September 2011:** Closed out

### Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/138568>)

## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Organization:

ReMetAI LLC

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

### Program Director:

Jason L Kessler

### Program Manager:

Carlos Torrez

### Principal Investigator:

Maxim L Seleznev

### Co-Investigator:

Maxim Seleznev

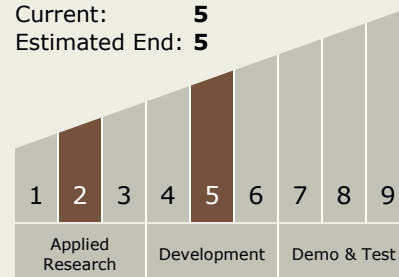
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## Technology Maturity (TRL)

Start: **2**  
Current: **5**  
Estimated End: **5**



## Technology Areas

### Primary:

- TX10 Autonomous Systems
  - └ TX10.1 Situational and Self Awareness
    - └ TX10.1.4 Hazard Assessment

## Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System